

spring legs on brake linings arranged on either side of the brake disc. The brake linings are lifted from the brake disc after a brake operation due to the spreading effect of the spring legs. The springs are compressed between a brake holder, a brake caliper and the brake linings in a first assembly. The resetting springs are anchored only insufficiently in the disc brake so that the resetting springs may easily be detached and lost, especially when exposed to vibrations. In a second design, the resetting springs are screwed to the disc brake. However, this necessitates an undesirable additional fastening means for each resetting spring. In addition, the use of two resetting springs basically involves the risk that in the event of failure of one of the resetting springs there will occur an inclined position of a brake lining which impairs functioning.

REMARKS

No new claims have been added and claims 21 and 40 have been cancelled. Claims 19, 20, 28, 30, 33, 39, and 41-43 have been amended. Accordingly claims 19, 20, 22-39, and 41-43 remain under prosecution in this application.

In The Drawings

The examiner objected to the drawings because the examiner does not believe that the second brake lining (as claimed in claim 19) is shown. The undersigned respectfully directs the examiner's attention to Figure 2A wherein brake lining 5 and brake lining 6 are both depicted. Support for this is found in paragraph 15 of the specification. Accordingly, the undersigned does not believe that any drawing changes must be made.

Claim Objections

Claim 33 is objected to because of improper grammar. Claim 33 has been appropriately amended to correct the grammatical error and accordingly the objection to claim 33 is now overcome.

35 USC §112, First Paragraph

Claims 34-36, 41, and 42 are rejected under 35 USC §112, first paragraph as containing subject matter which is not described in the specification. Specifically, the examiner contends that the specification fails to provide support for “casting fabrication” as claimed in claims 34, 41, and 42 and also fails to provide support for the limitation of a spiral type wound tension spring or a compression spring as claimed in claims 35 and 36 respectively. The undersigned respectfully disagrees. Paragraph 21 of the specification discusses shaping the pocket 34 during casting fabrication of the housing. Claim 34 specifically claims “wherein the pocket is shaped during casting fabrication of the brake housing.” Both claims 41 and 42 claim “groove-shaped indentations” which are shaped during casting. Support for this limitation is found in paragraph 19 of the Substitute Specification – Clean Copy. Support for “spiral-type wound tension spring” and “compression springs” as claimed in claims 35 and 36 is found in paragraph 17 of the Substitute Specification – Clean Copy. Accordingly, the undersigned does not believe that the rejection of claims 34-36, 41, and 42 is proper.

35 USC §112, Second Paragraph

Numerous rejections were made to claim 19 under 35 USC §112, second paragraph due to the indefiniteness of the claim. The undersigned has closely reviewed claim 19 as well as claims 28, 30, and 35 in view of the examiner’s comments and the undersigned has also closely reviewed all of the other remaining claims to the application and has made numerous amendments to overcome the indefiniteness rejection. Accordingly the undersigned believes that the indefiniteness rejection is now overcome.

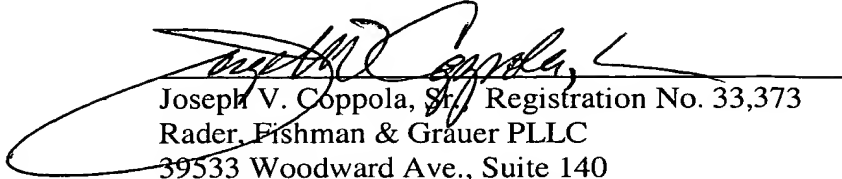
35 USC §102/103

Claim 19 has been amended to incorporate the features of claim 21. None of the references of record teach or suggest the invention set forth in newly amended claim 19 and

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accordingly the undersigned believes that claim 19 and its dependent claims are now in condition for allowance.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Joseph V. Coppola, Sr.", is written over a horizontal line. The signature is stylized with a large, sweeping loop at the beginning and end.

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MARKED UP VERSION OF ALL AMENDED CLAIMS

19. (New) A spot-type disc brake assembly⁽¹⁾ comprising:

a brake⁽²⁾ housing;

[at least one] an actuating device⁽⁴⁾ arranged in the brake housing to apply an actuating force to [the at least one brake lining;] a first brake lining⁽⁵⁾ detachably connected to the actuating device;

a second brake⁽⁶⁾ lining detachably connected to the actuating device and anchored axially on the brake housing; and

a spring assembly having a design that actively lifts and provides a clearance for the first brake lining, wherein the spring assembly is arranged with respect to the central plane of the brake housing [between the at least one actuating device], wherein the spring assembly includes:

a first leg⁽²¹⁾ portion which is detachably hooked at a shackle⁽²³⁾ portion of the first brake lining, wherein [the] a⁽²²⁾ shackle is shaped on a side of the first brake lining⁽¹⁵⁾ opposing [the] a⁽¹⁴⁾ frictional lining and being secured to the back side of a carrier plate having a front side that carries the [a] frictional lining in order to provide a point of force that radially overlaps a spring force that is exerted on a contact area of the first brake lining for actively lifting the actuating device after a braking application.

wherein the first leg portion of the spring assembly is supported on the first brake lining in a circumferential direction.

20. (First Amended) The spot-type disc brake assembly as claimed in Claim 19, wherein the spring assembly abuts, in a protected fashion, [on] in an indentation of the brake housing [in an indentation between the actuating devices].

28. (First Amended) The spot-type disc brake assembly as claimed in Claim 27, wherein the at least one grooved-shaped indentations are shaped during casting of the brake housing.

30. (First Amended) The spot-type disc brake assembly as claimed in Claim 29, wherein the two matingly configured fastening portions are received [at] in the at least one groove-shaped indentations.

33. (First Amended) The spot-type disc brake assembly as claimed in Claim 26, wherein the spring arms extending in a circumferential direction are arranged in a pocket adjacent to the recess on the radial top side of the housing, thereby rendering it possible to fix the spring assembly in a circumferentially or a radially accurate positioning on the brake housing.

39. (First Amended) A spot-type disc brake assembly, comprising:

a brake housing,

[at least one] an actuating device arranged in the brake housing to apply an actuating force to [the at least one brake lining;] a first brake lining detachably connected to the actuating device;

a second brake lining detachably connected to the actuating device and anchored axially on the brake housing; and

a spring assembly having a design that actively lifts and provides a clearance for at least one side of the first brake lining, wherein the spring assembly is arranged with respect to the central plane of the brake housing [between the at least one actuating device], wherein the spring assembly abuts, in a protected fashion, an indentation on the brake housing [in an indentation between the actuating devices], wherein the spring assembly includes:

a first leg portion which is detachably hooked at a shackle portion of the first brake lining and supported on the first brake lining in a circumferential direction [between the two actuating devices], wherein the shackle is shaped on a side of the first brake lining opposing the frictional lining and being secured to the back side of a carrier plate having a front side that carries a frictional lining in order to provide a point of force that radially overlaps a spring force that is exerted on a contact area of the first brake lining for actively lifting the actuating device after a braking application, and

a second leg portion detachably hooked into a bore in the brake housing.

41. (First Amended) A spot-type disc brake assembly, comprising:

a brake housing including at least one groove-shaped indentation, wherein the grooved-shaped indentations are shaped during casting of the brake housing;

[at least one] an actuating device arranged in the brake housing to apply an actuating force to [the at least one brake lining;] a first brake lining detachably connected to the actuating device;

a second brake lining detachably connected to the actuating device and anchored axially on the brake housing; and

a spring assembly arranged in a recess between two bridge portions of the brake housing having a design that actively lifts and provides a clearance for at least one side of the first brake lining, wherein the spring assembly is arranged with respect to the central plane of the brake housing [between the at least one actuating device], wherein the spring assembly abuts, in a protected fashion, on the brake housing in an indentation between the actuating devices, wherein the spring assembly includes:

a first leg portion which is detachably hooked at a shackle portion of the first brake lining, wherein the shackle is shaped on a side of the first brake lining opposing the frictional lining and being secured to the back side of a carrier plate having a front side that carries a frictional lining in order to provide a point of force that radially overlaps a spring force that is exerted on a contact area of the first brake lining for actively lifting the actuating device after a braking application, wherein the first leg, at its free end, includes:

bent portions to permit ease of mounting the first leg at the shackle and to prevent the first leg from slipping out of the shackle; and

a second leg portion in a circumferential direction on the brake housing by two spring arms supported in the recess, which extend opposedly in a circumferential direction in order to prevent tilting movement of the spring assembly, wherein the second leg portion, at its free end, includes:

two matingly configured fastening portions under a spring bias that improves accurate positioning and hold of the second leg, wherein the two matingly configured fastening portions are received at the groove-shaped indentations.

42. (First Amended) A spot-type disc brake assembly, comprising:

a brake housing including at least one groove-shaped indentation, wherein the grooved-shaped indentations are shaped during casting of the brake housing;

[at least one] an actuating device arranged in the brake housing to apply an actuating force to [the at least one brake lining;] a first brake lining detachably connected to the actuating device;

a second brake lining detachably connected to the actuating device and anchored axially on the brake housing; and

a spring assembly arranged in a recess [between two bridge portions] of the brake housing having a design that actively lifts and provides a clearance for at least one side of the first brake lining, wherein the spring assembly is arranged with respect to the central plane of the brake housing [between the at least one actuating device], wherein the spring assembly abuts an indentation on the brake housing, in a protected fashion[, on the brake housing in an indentation between the actuating devices,] wherein the spring assembly includes:

a first leg portion which is detachably hooked at a shackle portion of the first brake lining, wherein the shackle is shaped on a side of the first brake lining opposing the frictional lining and being secured to the back side of a carrier plate having a front side that carries a frictional lining in order to provide a point of force that radially overlaps a spring force that is exerted on a contact area of the first brake lining for actively lifting the actuating device after a braking application, wherein the first leg, at its free end, includes:

bent portions to permit ease of mounting the first leg at the shackle and to prevent the first leg from slipping out of the shackle; and

a second leg portion in a circumferential direction on the brake housing by two spring arms supported in the recess, which extend opposedly in a circumferential direction in order to prevent tilting movement of the spring assembly, wherein the second leg portion, at its free end, includes:

a matingly configured fastening portion under a spring bias that improves accurate positioning and hold of the second leg, wherein the matingly configured fastening portion is received at the groove-shaped indentation or at a fastening portion bore in the brake housing.

43. (First Amended) A spot-type disc brake assembly, comprising:

a brake housing;

[at least one] an actuating device arranged in the brake housing to apply an actuating force to [the at least one brake lining;] a first brake lining detachably connected to the actuating device;

a second brake lining detachably connected to the actuating device and anchored axially on the brake housing; and

a spring assembly arranged in a recess between two bridge portions of the brake housing having a design that actively lifts and provides a clearance for at least one side of the first brake lining, wherein the spring assembly is arranged with respect to the central plane of the brake housing [between the at least one actuating device], wherein the spring assembly abuts, in a protected fashion, on the brake housing in an indentation between the actuating devices, wherein the spring assembly includes:

a first leg portion which is detachably hooked at a shackle portion of the first brake lining, wherein the shackle is shaped on a side of the first brake lining opposing the frictional lining and being secured to the back side of a carrier plate having a front side that carries a frictional lining in order to provide a point of force that radially overlaps a spring force that is exerted on a contact area of the first brake lining for actively lifting the actuating device after a braking application, wherein the first leg, at its free end, includes:

bent portions to permit ease of mounting the first leg at the shackle and to prevent the first leg from slipping out of the shackle; and

a second leg portion supported in a circumferential direction on the brake housing by two spring arms supported in the recess, which extend opposedly in a circumferential direction in order to prevent tilting movement of the spring assembly, wherein the spring arms extending in a circumferential direction are arranged in a pocket adjacent to the recess on the radial top side of the housing, thereby rendering it possible to fix the spring assembly in a circumferential or a radially accurate positioning on the brake housing, wherein the pocket is shaped during casting fabrication of the brake housing.

MARKED-UP COPY OF THE SPECIFICATION

[0002] DE 31 30 185 A1 discloses a disc brake with resetting springs. The disc brake includes two resetting springs spaced in a circumferential direction and abutting with free spring legs on brake linings arranged on either side of the brake disc. The brake linings are lifted from the brake disc after a brake operation due to the spreading effect of the spring legs. The springs are compressed between a brake holder, a brake caliper and the brake linings in a first assembly. The resetting springs are anchored only insufficiently in the disc brake so that the resetting springs may easily be detached and [or get] lost, especially when exposed to vibrations. In a second design, the resetting springs are screwed to the disc brake. However, this necessitates an undesirable additional fastening means for each resetting spring. In addition, the use of two resetting springs basically involves the risk that in the event of failure of one of the resetting springs there will occur an inclined position of a brake lining which impairs functioning.